2. Legal Basis for Environmental Impact Assessments

This chapter identifies and describes the legal mandates for environmental impact assessment by reviewing recent Federal legislation affecting fish and wildlife resources. For a compilation of relevant Federal legislations enacted before those treated in this chapter, the reader is referred to Bean (1977) and Congressional Research Service, Library of Congress (1977).

2.1 The evolution of environmental policy. Convergence of natural resource conservation legislation and regulatory mandates to protect public health and welfare first became apparent in the late 1950's and 1960's. The conservation ethic, developed in the early part of the 20th century, evolved into a more holistic environmental perspective which recognized the interdependence of man and his environment. Environmental quality became an important attribute of the public welfare. Early Federal legislation, known as the Wildlife Coordination Act of 1934, later to become the Fish and Wildlife Coordination Act of 1958 (16 U.S.C. 661, et seq.), authorized the assessment of adverse environmental impacts associated with Federal water projects. Public concern for the protection of environmental quality, previously applied principally to Federal construction projects, was given application throughout all Federal agencies by the passage of the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321, et seq.). NEPA is the culmination of national concern in the 1960's for natural resource conservation, and public health and welfare legislation. NEPA set the tenor and policy basis for succeeding Federal and State environmental legislation, and established the Council on Environmental Quality.

2.2 Legal mandates for environmental impact assessments. NEPA is the landmark of environmental legislation and has served as the policy umbrella and mandate for numerous other Federal legislation. NEPA sets forth as its purposes: "To declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation...." In passing NEPA, Congress recognized the dependence and inseparability of the public health and welfare of the Nation and environmental quality. NEPA applies to all the activities and programs of all Federal agencies. Furthermore, it requires all agencies to consider environmental values along with economic or developmental considerations. Regarding assessment activities, NEPA further stated that all Federal agencies shall:

> "utilize a systematic, interdisciplinary approach which will insure the integrated use of the natural and social sciences and the environmental design arts in planning and in decisionmaking which may have an impact on man's environment," and

"identify and develop methods and procedures, in consultation with the Council on Environmental Quality..., which will insure that presently unquantified environmental amenities and values may be given appropriate consideration in decisionmaking along with economic and technical considerations."

Some of the more prominent legislative acts which mandate Federal agencies to environmental conservation include:

A. Archeological and Historic Preservation Act, 16 U.S.C. 469, et seq.
B. Clear Air Act, as amended, 42 U.S.C. 7401, et seq.
C. Clear Water Act (Federal Water Pollution Control Act), 33 U.S.C. 1251, et seq.
D. Coastal Zone Management Act, 16 U.S.C. 1451, et seq.
E. Endangered Species Act, 16 U.S.C. 1531, et seq.
F. Estuary Protection Act, 16 U.S.C. 1221, et seq.
G. Federal Land Policy and Management Act, 43 U.S.C. 1701, et seq.
H. Federal Nonnuclear Energy Research and Development Act, 42 U.S.C. 5901 et seq.
I. Federal Water Project Recreation Act, 16 U.S.C. 460-1(12), et seq.
J. Fish and Wildlife Coordination Act, 16 U.S.C. 661, et seq.
K. Forest and Rangeland Renewable Resources Planning Act, 16 U.S.C. 1601, et seq.
L. Land and Water Conservation Fund Act, 16 U.S.C. 4601 - 4601-11, et seq.
M. Marine Protection, Research and Sanctuary Act, 33 U.S.C. 1401, et seq.
N. National Environmental Policy Act, 42 U.S.C. 4321, et seq.
O. National Historic Preservation Act, 16 U.S.C. 470a, et seq.
P. National Forest Management Act, 16 U.S.C. 472, et seq.
Q. Rivers and Harbors Act, 33 U.S.C. 403, et seq.
R. Soil and Water Resources Conservation Act, 16 U.S.C. 2001, et seq.
S. Surface Mining Control and Reclamation Act, 30 U.S.C. 1201, et seq.
T. Water Resources Planning Act, 42 U.S.C. 1962, et seq.
U. Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.
V. Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq.

These Acts address the protection, inventory, conservation, or rehabilitation of the environmental resources of the Nation. Many of the above statutes represent organic legislation of Federal agencies such as the Water Resources Council, the Bureau of Land Management, and the Office of Surface Mining Reclamation and Enforcement.

2.3 Variability in focus of environmental impact assessments. A common feature of all of the laws listed above is the necessity to inventory and quantify the status of air, water, land, and other ecological resources in order to assess, predict, or regulate resource changes resulting from various types of man-induced impacts. A comprehensive definition of environmental impact assessment has been suggested by the International Council of Scientific Unions (1975) as: "an activity designed to identify and predict the impact on man's health and well-being, of legislative proposals, policies, programs, projects, and operational procedures, and to interpret and communicate information about the impacts."

Unfortunately, many differences exist in the focus, scope, and resolution of environmental impact assessments. This stems largely from ambiguous and occasionally contradictory language of various Federal Acts and the lack of concensus among scientists working in this field. The problem is particularly pronounced in assessments dealing with ecological or wildlife impacts. This has contributed significantly to the variability of information gathered by agencies charged by statute with conducting impact assessments.

Congressional requirements to assess impacts on fish and wildlife resources are generally framed around four indicators of public interest: species-populations, biological integrity, environmental values, and habitat. The four indicators are identified in the language of some key environmental legislation. References to wildlife resources in legislative acts are often intentionally vague to allow for more definitive clarification in the regulations drafted by the implementing agency. Frequently, wildlife resources are not mentioned specifically, but are lumped under the general term "environmental resource values."

A. Species-population. The concept that fish and wildlife species or populations or other descriptors thereof can be the basis for determining and assessing impacts is most clearly illustrated in the language of the Clean Water Act. Section 304(a)(1)(A) "Information and Guidelines" states that criteria for water quality should include "extent of all identifiable effects on health and welfare including ...plankton, fish, shellfish, wildlife, plant life..." Section 316(a) requires applicants for a variance from thermal discharge guidelines to "assure the protection and propagation of a balanced, indigenous population of fish, shellfish, and wildlife...." This language reflects the interim goal of the Act under Section 101(a)(2) of achieving water quality "which provides for the protection and propagation of fish, shellfish, and wildlife...." Several other Acts could be interpreted as requiring a species-population approach, notably the Endangered Species Act, the Federal Nonnuclear Energy Research and Development Act, and the Surface Mining Control and Reclamation Act.

B. Biological integrity. Interestingly, the Clean Water Act also is associated with the biological or ecological integrity approach which attempts to evaluate impacts from an integrated ecosystem viewpoint. The goal of that Act [Section 101(a)] states "The objective of this Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The ecological basis of this concept is further reflected in Section 304(a)(1)(C) which calls for water quality criteria based "on the effects of pollutants on biological community diversity, productivity, stability..." The Council on Environmental Quality regulations implementing NEPA defines the "effects" which are to be addressed in impact assessments (43 C.F.R. 1508.8): "Effects include ecological (such as effects on natural resources and on the components, structure, and functioning of affected ecosystems)...."

C. Environmental values. The equal consideration of environmental values and economic values to be derived or foregone from a given project or development activity is the essence of the "equal dignity" concept mandated by NEPA. The equal consideration or "values" approach to environmental impact assessment is best illustrated by the Water Resources Council's Principles and Standards (P&S) (38 F.R. 24778, 44 F.R. Part X, and 18 C.F.R. 713). The P&S establish procedures designed to measure and quantify the beneficial and adverse effect of water and land developments on two objectives: national economic development and environmental quality. P&S Section II (B) indicates that: "Beneficial and adverse effects are measured in monetary or nonmonetary terms." P&S establishes the approach to impact assessment based on estimating the monetary and nonmonetary "value" of the components of environmental quality. For example, such things as "biological resources," "ecological systems," "natural beauty," "historical resources," and "water and air quality," are to be compared with economic development factors such as power generation, employment, and flood control. Although philosophically admirable, the implementation of the values approach has been hampered by the difficulty of placing values on intangible and intrinsic environmental components which have unknown or nondeterminable market value.

D. Habitat. The fourth approach to environmental impact assessment is habitat analysis. The Federal Land Policy and Management Act declared that the policy of Congress with regard to the management of public lands under Section 102(a)(8) includes the provision of "food and habitat for fish and wildlife and domestic animals." Section 201(a) of the Act requires "an inventory of all public lands and their resource and other values... giving priority to areas of critical environmental concern." Areas of "critical environmental concern" are defined in Section 103 to include "important fish and wildlife resources."

The Fish and Wildlife Coordination Act requires the USFWS, in cooperation with State fish and wildlife agencies, to conduct surveys and investigations for the conservation of fish and wildlife resources. This Act pertains to Federal construction projects or federally-permitted or licensed projects affecting any stream or other body of water. The Act does not specify any particular assessment methodology. However, the USFWS's draft regulations (F.R. Vol. 44. No. 98. May 18, 1979) implementing this Act recognize the concept and specify the use of habitat values.

The Forest and Rangeland Renewable Resources Planning Act also directs the Department of Agriculture to conduct renewable resource assessments. "The evaluation shall assess the balance between economic factors and environmental quality factors. Program benefits shall include, but not be limited to, environmental quality factors, such as esthetic, public access, wildlife habitat, recreational ..." (16 U.S.C. 1606(d)). Similarly, the Soil and Water Resources Conservation Act calls for "appraisals" including, under Section 5(a)(1), "data on quality and quantity of soil, water, and related resources including fish and wildlife habitats."

The Endangered Species Act also recognizes the importance of habitat to the protection, preservation, and restoration of endangered and threatened species. Section 3(5)(A) defines the term "critical habitat" and Section 4(a)(1) empowers the Secretary of the Interior to "specify any habitat of such species which is then considered to be critical habitat." Section 7(a)(2) requires each Federal agency to ensure that its activities do not "result in the destruction or adverse modification of habitat of such species...." Section 7(b) and 7(c) provide for "biological assessments" and "biological opinions" to make such determinations.

Recent rules and regulations pursuant to the Surface Mining Control and Reclamation Act require the assessment of impacts to fish and wildlife resources. Section 779.20(a) of the Office of Surface Mining Reclamation and Enforcement (OSM) Regulations in 30 C.F.R. requires mining permit applicants to include "a study of fish and wildlife and their habitats." Introductory material to Section 779.20 (March 13, 1979 Federal Register publication, 44 F.R. 15037) of the OSM regulations indicates that the agency's interpretation of Section 515(b)(24) ("minimize disturbance and adverse impacts of the operation on fish, wildlife, and related environmental values..."), is that it includes habitat.

2.4 Variability in scope and resolution of environmental impact assessments. A fairly broad spectrum exists in Federal laws and policies with regard to the resolution and geographic scope of assessments, ranging from broad-based national assessments to site-specific plans. For example,

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Federal agencies' legislation addressing impact assessment as part of a regulatory or consultation function tend to require a high degree of resolution and site specificity (e.g., a mining site plan, a stream reach, a construction project site, a timber sale, or a grazing management unit). The Surface Mining Control and Reclamation Act and the Clean Water Act exemplify this category of resolution.

A second category involves legislation calling for basinwide or regional planning assessments with an associated lower degree of resolution. Examples of this type of assessment would include Water Resources Council 13A assessments, Federal Nonnuclear Energy Research and Development Act, P&S level A and B studies, and most NEPA Environmental Impact Statements (EIS's).

The third category or level of resolution includes impact assessments on a national or major geographic basis such as programmatic EIS's, national assessments, and inventories designed to tabulate the natural resources of "all public lands" or "all National forest and rangelands".

2.5 Elements common to all environmental impact assessments. The foregoing discussion pointed out that the legal mandates for environmental impact assessments vary in approach, scope, and resolution. However, at least two common points are recognized:

1) Interactions between physical, chemical, and biological components dictate environmental quality. Thus, to varying degrees, an ecosystem approach to impact assessments is defined.

2) Man has the capability of exploiting natural resources to a point at which his life support system may begin to break down. The legislation subsequent to NEPA provides recognition and reaffirmation of the NEPA goals that modern industrialized society must provide in law for the maintenance, conservation, or rehabilitation of the basic life support system, both for existing and for future generations.

Therefore it follows that certain elements should be common to all potential environmental impact assessment methods. These are:

1) The environmental impact assessment methodology should have the capability to quantify the extent and status of various natural resource components and their susceptibility to irreparable damage or loss. All chemical, physical, biological, economic, and social parameters that are relevant to the change expected to result from a proposed action, should be addressed.

2) The environmental impact assessment should objectively predict the quantitative and qualitative short and long term changes in physical, chemical, and biological features associated with alternative ways of achieving the proposed objective. The "goodness" or "badness" of each alternative is determined by the decisionmaker(s) and is not made a part of the assessment.

None of the environmental laws or regulations which require impact assessment prescribe a methodology to be used in the collection, compilation, analysis, or evaluation of natural resource information. The focus of subsequent chapters will be to describe the concepts behind, and the rationale in support of, a habitat-based impact assessment methodology currently available for use in certain aspects of fish and wildlife resource management.